**REVISION PAPER**

1 (a). Hexadecimal values can be used to represent denary values.

Convert these four hexadecimal values into denary values.

05......................................................

20......................................................

1A......................................................

AB...................................................... [4]

Working space

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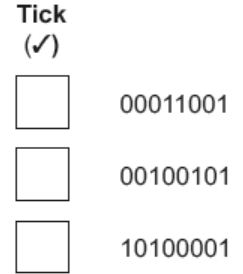
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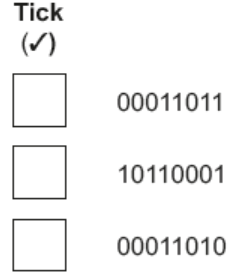
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(b)Hexadecimal values can also be converted to binary values.Tick (✓) one box to show the correct 8-bit binary value for each hexadecimal value.

1. Hexadecimal value 25

 [1]

1. Hexadecimal value 1B

 [1]

C (i) Give one way that hexadecimal is used in website development.

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1. Give one way that hexadecimal is used in low-level programming.

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2. Sammi works for a finance company and has a laptop that he uses for his work. He has confidential data about his customers stored on his laptop. Sammi does not connect the laptop to any networks.

(a) Sammi is concerned about his customers’ confidential data being viewed by other people in his office. One method he uses to prevent others viewing the data is encryption.

Identify three other methods Sammi could use to prevent his customers’ confidential data being viewed.

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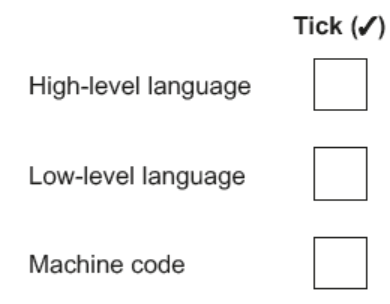
2…...........................................................................................................................................

3.............................................................................................................................................[3]

3. Cameron writes software for coffee machines. He uses assembly language to write his software.

(a) Tick (3) to show whether assembly language is an example of a high-level language,

a low-level language or machine code.

 [1]

(b) Identify the translator that is required for assembly language.

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(c) Give two reasons why Cameron chooses to write the software for the coffee machines in

assembly language.

Reason 1.................................................................................................................................

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Reason 2.................................................................................................................................

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(d) Give two drawbacks of using assembly language to write programs.

Drawback 1...............................................................................................................................

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Drawback 2...............................................................................................................................

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4. Eleanor has a website that she uses to advertise the cakes that she bakes.

She thinks her bank details were stolen electronically, while she was using the Internet.

(a) Identify and describe two methods that could have been used to steal Eleanor’s bank details electronically.

Method 1..................................................................................................................................

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Method 2..................................................................................................................................

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(b) Eleanor uses a secure connection to allow customers to buy the cakes from her website.

Describe how the secure connection is created.

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(c) Eleanor’s website uses cookies.

Explain what is meant by the term cookies and give two examples of how cookies can be

used.

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5. Steffi has a number of files of different sizes that contain her work. Tick (✓) to show whether each statement is **true** or **false**.

|  |  |  |
| --- | --- | --- |
| **Statement** | **true (**✓**)** | **false (**✓**)** |
| 47KB is larger than 10MB. |  |  |
| 250bytes is smaller than 0.5MB. |  |  |
| 50GB is larger than 100MB. |  |  |
| 1TB is smaller than 4GB. |  |  |

[4]

6. Five statements about **serial half-duplex** data transmission are shown in the table below. Tick (✓) to show whether each statement is **true** or **false**.

|  |  |  |
| --- | --- | --- |
| **Statement** | **true (**✓**)** | **false (**✓**)** |
| Data is transmitted in one direction only, one bit at a time. |  |  |
| Data is transmitted in both directions, multiple bits at a time. |  |  |
| Data is transmitted in one direction only, multiple bits at a time. |  |  |
| Data is transmitted in both directions, but only one direction at a time. Data is transmitted one bit at a time. |  |  |
| Data is transmitted in both directions, but only one direction at a time. Data is transmitted multiple bits at a time. |  |  |

[5]

7. (a)Parity checks are often used to detect errors that may occur during data transmission.

The received bytes in the table below were transmitted using **odd parity**.

Tick (✓) to show whether each byte has been **corrupted during transmission** or **not corrupted during transmission**.

|  |  |  |
| --- | --- | --- |
| **Received byte** | **corrupted during transmission (**✓**)** | **not corrupted during transmission (**✓**)** |
| 10110100 |  |  |
| 01101101 |  |  |
| 10000001 |  |  |

[3]

**(b)** Another method of error detection is Automatic Repeat reQuest (ARQ).

Explain how ARQ is used in error detection.

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8. A supermarket has a system that allows customers to check out their own shopping.

Identify and describe the purpose of **two** input devices and **one** output device used in this system.

Input device 1...................................................................................................................................

Purpose.................................................................................................................................

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Purpose: .........................................................................................................................................

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Output device

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Purpose.........................................................................................................................................

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9. The processes in a chemical factory are monitored by sensors connected to a microprocessor.

(a) Identify **two** different sensors used in this application. Give an example of how each sensor could be used in the chemical factory.

Sensor 1 ...................................................................................................................................

Use ...........................................................................................................................................

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Sensor 2 ...................................................................................................................................

Use ...........................................................................................................................................

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* 1. Describe how the sensors and a microprocessor are used to monitor a process.

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10**. (a)** Gurdeep wants to send a large file to Jennifer over the Internet.

State **two** benefits of compressing the file to send it.

Benefit 1 ...................................................................................................................................

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Benefit 2 ...................................................................................................................................

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1. Two types of compression are lossy and lossless.

Choose the most suitable type of compression for the following and explain your choice.

* 1. Downloading the code for a computer program:

Type of compression .........................................................................................................

Explanation .......................................................................................................................

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**(ii)** Streaming a **video** file:

Type of compression .........................................................................................................

Explanation .......................................................................................................................

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1. (a) A 16-bit colour image has a resolution of 512 pixels wide by 512 pixels high.

Calculate the file size of the image in kilobytes (KiB). Show all your working.

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Answer KiB

[3]

1. (a) An IP address can have an IPv4 or IPv6 format.
2. Give an example of an IP address that has an IPv4 format.

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1. Give **two** characteristics of the IPv6 format.

1 ........................................................................................................................................

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2 ........................................................................................................................................

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